AMENDMENTS TO THE CLAIMS

1.   (currently amended)   A method comprising:

~~determining which system resources of a computer system, if any, are to remain under control of a resident operating system of the computer system and which of the system resources are to be placed under control of one or more customized execution environments (CE²s) that are to be established within the computer system; and~~

~~partitioning the system resources among the resident operating system and the one or more CE²s by associating one or more partitions of the system resources with the one or more CE²s.~~

providing a computer-readable medium encoded with instructions that implement one or more customized execution environments, each customized execution environment providing an execution environment for a single application and exclusively managing a subset of hardware resources of a computer system, with no operating system abstractions or interfaces interposed between the customized execution environment and the subset of hardware resources;

determining which hardware resources of the computer system are to remain under control of a resident operating system executing within the computer system and which of the hardware resources of the computer system constitute each subset of hardware resources of the computer system managed exclusively by one of the one or more customized execution environments; and

partitioning the hardware resources among the resident operating system and the one or more customized execution environments by associating one or more partitions of the hardware resources with the one or more customized execution environments.

2.   (currently amended) The method of claim 1, wherein said partitioning the ~~system~~ hardware resources comprises the resident operating system configuring the one or more

partitions using hardware-based isolation ~~techniques~~ <u>features</u> provided by one or more processors of the computer system.

3.   (original) The method of claim 2, further comprising the resident operating system entering a dormant state.

4.   (currently amended) The method of claim 1, wherein said partitioning the ~~system~~ <u>hardware</u> resources comprises the operating system configuring the one or more partitions using a secure-platform interface.

5.   (currently amended) The method of claim 4, further comprising the resident operating system retaining full control of one or more of the partitions and remaining active after said partitioning the ~~system~~ <u>hardware</u> resources.

6.   (currently amended) The method of claim 1, wherein said partitioning the ~~system~~ <u>hardware</u> resources comprises a system administrator configuring the one or more partitions using hardware partitioning capability by the computer system.

7.   (currently amended) The method of claim 6, further comprising separately booting the resident operating system and the one or more <u>customized execution environments</u> ~~CE^{2}s~~ within their respective configured partitions.

8.   (currently amended) The method of claim 1, further comprising a <u>customized execution environment</u> ~~CE^2~~ of the one or more <u>customized execution environments</u> ~~CE^{2}s~~ making use of capabilities of the computer system not supported by the resident operating system.

9.   (currently amended) The method of claim 1, wherein a <u>customized execution environment</u> ~~CE^2~~ of the one or more <u>customized execution environments</u> ~~CE^{2}s~~ comprises

both statically linked system code and data modules and application code and data modules.

10.	(currently amended) The method of claim 1, wherein functional capabilities of a <u>customized execution environment</u> ~~CE^2~~ of the one or more <u>customized execution environments</u> ~~CE^2s~~ is strictly limited to only those services required by a small set of predetermined applications.

11.	(currently amended) The method of claim 1, where in an application within a <u>customized execution environment</u> ~~CE^2~~ of the one or more <u>customized execution environments</u> ~~CE^2s~~ is limited to a single thread of execution in a processor controlled by the CE^2.

12.	(currently amended) The method of claim 1, wherein a <u>customized execution environment</u> ~~CE^2~~ of the one or more <u>customized execution environments</u> ~~CE^2s~~ utilizes hardware capabilities not supported by the resident operating system.

13.	(currently amended) The method of claim 1, wherein services provided to an application within a <u>customized execution environment</u> ~~CE^2~~ of the one or more <u>customized execution environments</u> ~~CE^2s~~ enable the application to recover and continue from a system error.

14.	(original) The method of claim 1, wherein a<u> customized execution environment</u> ~~CE^2~~ of the one or more <u>customized execution environments</u> ~~CE^2s~~ is non-portable.

15.	(currently amended) The method of claim 1, wherein services provided to an application within a <u>customized execution environment</u> ~~CE^2~~ of the one or more <u>customized execution environments</u> ~~CE^2s~~ utilize no general-purpose operating system abstractions.

16. (currently amended) The method of claim 1, wherein services within a <u>customized execution environment</u> ~~CE²~~ employ entirely different resource management strategies than those used by a general-purpose operating system.

17. (currently amended) A method comprising

<u>providing a computer-readable medium encoded with instructions that implement a customized execution environment, the customized execution environment providing an execution environment for a single application, and exclusively managing a subset of hardware resources of a computer system, with no operating system abstractions or interfaces interposed between the customized execution environment and the subset of hardware resources;</u>

~~an operating system of a computer system receiving information regarding a customized execution environment (CE²);~~

~~the operating system~~ partitioning, <u>by an operating system executing within the computer system, the</u> ~~system~~ <u>hardware</u> resources of the computer system, including one or more processors and one or more ranges of physical memory, by ~~(i)~~

determining which of the ~~system~~ <u>hardware</u> resources~~, if any,~~ are to remain under control of the operating system and which of the ~~system~~ <u>hardware</u> resources are to be placed <u>within the subset of hardware resources exclusively managed by</u> the <u>customized execution environment</u> ~~CE²~~, ~~and (ii)~~

associating a first partition of the ~~system~~ <u>hardware</u> resources with the <u>customized execution environment</u> ~~CE²~~; and

the operating system surrendering full control of the first partition of the ~~system~~ <u>hardware</u> resources to the<u> customized execution environment</u> ~~CE²~~.

18. (currently amended) The method of claim 17, wherein the information regarding a <u>customized execution environment</u> ~~CE²~~ includes a directive to partition hardware resources and an associated partition descriptor, the partition descriptor identifying hardware resources needed by the <u>customized execution environment</u> ~~CE²~~ and indicating how partitions are to be configured.

19.   (currently amended) The method of claim 17, wherein said associating a first partition of the ~~system~~ hardware resources with the customized execution environment ~~CE^2~~ comprises disassociating those of the ~~system~~ hardware resources in the ~~fist~~ first partition from the operating system and reconfiguring interrupts.

20.   (currently amended) The method of claim 17, further comprising:

the operating system retaining full control of a second partition of the ~~system~~ hardware resources; and

isolating the second partition of the ~~system~~ hardware resources to protect the ~~system~~ hardware resources associated with the operating system from the customized execution environment ~~CE^2~~ by employing hardware isolation.

21.   (currently amended) The method of claim 20, further comprising isolating the first partition of the ~~system~~ hardware resources to protect the ~~system~~ hardware resources associated with the customized execution environment ~~CE^2~~ from the operating system by employing hardware isolation.

22.   (currently amended) The method of claim 20, wherein the hardware isolation comprises establishing one or more disjoint sets of protection keys for one or more operations on one or more ranges of virtually addressed memory in the first or second partitions of the ~~system~~ hardware resources.

23.   (currently amended) The method of claim 20, wherein the hardware isolation comprises establishing one or more disjoint sets of region identifiers for one or more operations on one or more ranges of virtually addressed memory in the first or second partitions of the ~~system~~ hardware resources.

24.   (currently amended) The method of claim 20, wherein the hardware isolation comprises associating one or more ranges of memory in the second partition of the

~~system~~ <u>hardware</u> resources with a processor in the second partition, and associating one or more ranges of memory in the first partition of the ~~system~~ <u>hardware</u> resources with a processor in the first partition.

25.   (currently amended) The method of claim 24, wherein said associating one or more ranges of memory in the second partition of the ~~system~~ <u>hardware</u> resources with a processor in the second partition, and said associating one or more ranges of memory in the first partition of the ~~system~~ <u>hardware</u> resources with a processor in the first partition, comprises employing a region-identifier-based memory partitioning mechanism.

26.   (currently amended) The method of claim 17, further comprising:

receiving an indication that the <u>customized execution environments</u> ~~CE^2~~ is terminating; and

the operating system assuming control of the first partition of the ~~system~~ <u>hardware</u> resources.

27.   (currently amended) A system comprising:

<u>a computer-readable medium encoded with instructions that implement a resident operating system and one or more customized execution environments, each customized execution environment providing an execution environment for a single application, and exclusively managing a subset of hardware resources of a computer system, with no operating system abstractions or interfaces interposed between the customized execution environment and the subset of hardware resources;</u>

~~one or more storage devices having stored thereon software images of a resident operating system and customized control environment and services associated with one or more custom execution environments (CE²);~~

one or more processors, coupled to the one or more storage devices, ~~to~~ <u>that</u> execute the resident operating system and the customized control environment ~~and services~~, where:

a determination is made with respect to which portion~~, if any,~~ of <u>hardware</u> resources of the system, including the one or more processors and memory of the system, are to remain under control of the resident operating system and which portion of the <u>hardware</u> resources are to be placed under control of the one or more <u>customized execution environments</u> ~~CE²s~~; and

the <u>hardware</u> resources are partitioned among the resident operating system and the one or more <u>customized execution environments</u> ~~CE²s~~ by associating one or more portions of the <u>hardware</u> resources with the one or more <u>customized execution environments</u> ~~CE²s~~.

28.   (currently amended) A server comprising:

<u>a computer-readable medium encoded with instructions that implement a resident operating system and one or more concurrent customized execution environments, each customized execution environment providing an execution environment for a single application, and exclusively managing a subset of hardware resources of a computer system, with no operating system abstractions or interfaces interposed between the customized execution environment and the subset of hardware resources, the resident operating system capable of establishing a first partition of hardware resources for use and control by the operating system and a second partition of hardware resources for use and control by the concurrent customized execution environments;</u>

one or more storage devices having stored thereon software images of an operating system and customized control environment and services associated with a concurrent custom execution environment ~~(C²E²)~~, the operating system capable of establishing a first partition of ~~system~~ resources for use and control by the operating system and a second partition of ~~system~~ resources for use and control by the C^2E^2;

one or more processors, coupled to the ~~one or more storage devices~~ <u>computer-readable medium,</u> ~~to~~ <u>that</u> execute the <u>resident</u> operating system ~~and the customized control environment and services~~, where:

a first portion of ~~the~~ one or more storage devices, a first portion of the one or more processors, a first portion of memory, and a first portion of one or more input/output (I/O) devices are associated with the first partition by the operating system;

a second portion of ~~the~~ one or more storage devices, a second portion of the one or more processors, a second portion of the memory, and a second portion of the one or more input/output (I/O) devices are associated with the second partition by the <u>resident</u> operating system;

the first partition is isolated to protect the ~~system~~ <u>hardware</u> resources associated with the <u>resident</u> operating system from the <u>concurrent custom execution environment</u> ~~C^2E^2~~ by employing hardware-based security measures; and

full control of the second partition is surrendered to the <u>concurrent custom execution environment</u> ~~C^2E^2~~ by the <u>resident</u> operating system initializing and invoking the customized control environment and services in the second portion of memory.

29.   (currently amended) The server of claim 28, wherein the second partition is isolated to protect the ~~system~~ <u>hardware</u> resources associated with the <u>concurrent custom execution environment</u> ~~C^2E^2~~ from the <u>resident</u> operating system by employing hardware-based security measures.

30.   (original) The server of claim 28, wherein the customized control environment and services are non-portable.

31.   (original) The server of claim 28, wherein the first partition includes at least one processor.

32.   (original) The server of claim 28, wherein the second partition includes at least one processor.

33. (original) The server of claim 28, wherein the one or more storage devices have stored thereon a software image of a customized application for which a computational structure of the customized control environment and services has been tuned.

34. (original) The server of claim 33, wherein the customized application comprises a web edge engine.

35. (original) The server of claim 34, wherein the web edge engine comprises a web server.

36. (original) The server of claim 34, wherein the web edge engine comprises an application server.

37. (original) The server of claim 34, wherein the web edge engine comprises a communication server.

38. (original) The server of claim 28, wherein a communication channel is maintained between the first partition and the second partition, and wherein a dynamic content generator executes within the first partition and provides dynamic content to the web server via the communication channel.

39. (original) The server of claim 28, wherein the hardware-based security measures comprise use of one or more of region identifiers, protection identifiers, and memory page access rights values.

40. (currently amended) An operating system comprising:

a means for partitioning ~~system~~ hardware resources into a least a first partition to remain under the control of the operating system, which executes within a computer system, and a second partition that is to be placed under the full control of a concurrent custom execution environment ~~(C²E²)~~, the concurrent customized execution

environment providing an execution environment for a single application, and exclusively managing a subset of hardware resources of the computer system, with no operating system abstractions or interfaces interposed between the customized execution environment and the subset of hardware resources;

an interface means to hardware-based isolation features for protecting the ~~system~~ hardware resources of the first partition against access by the concurrent custom execution environment C^2E^2;

a means for transferring full control of the ~~system~~ hardware resources of the second partition to the concurrent custom execution environment C^2E^2, including initializing and invoking customized control and services associated with the concurrent custom execution environment C^2E^2; and

a means for providing communication between the first partition and the second partition.

41.   (currently amended) The operating system of claim 40, further comprising a means for reincorporating partitioned ~~system~~ hardware resources.

42.   (currently amended) The operating system of claim 40, further comprising:

separate means for operator control of the operating system and the concurrent custom execution environment C^2E^2; and

separate interface means for monitoring the operating system and the concurrent custom execution environment C^2E^2.

43.   (currently amended) An operating system comprising:

a means for communicating with one or more concurrent custom execution environments ~~(C^2E^2s)~~ operating within and controlling respective hardware-enforced partitions of a ~~system~~ hardware resources separate from a hardware-enforced partition of ~~system~~ hardware resources in which the operating system resides, the concurrent customized execution environment providing an execution environment for a single application, and exclusively managing a subset of hardware resources of a

computer system, with no operating system abstractions or interfaces interposed between the customized execution environment and the subset of hardware resources; and

a means for causing a concurrent custom execution environment C^2E^2 of the one or more concurrent custom execution environment C^2E^2 to begin processing or to terminate.